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REPORT  
OF THE  
BOARD OF COMMISSIONERS  
OF THE  
SECOND GEOLOGICAL SURVEY OF PENNSYLVANIA.  
*To the Legislature, January 1, 1885.*

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P38.38

## BOARD OF COMMISSIONERS.

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His Excellency, ROBERT E. PATTISON, <i>Governor,</i>	
	and <i>ex-officio</i> President of the Board, Harrisburg.
ARIO PARDEE,	Hazleton.
WILLIAM A. INGHAM,	Philadelphia.
HENRY S. ECKERT,	Reading.
HENRY McCORMICK,	Harrisburg.
JAMES MACFARLANE,	Towanda.
CHARLES A. MINER,	Wilkes Barre.
JOSEPH WILCOX,	Media.
DANIEL J. MORRELL,	Johnstown.
LOUIS W. HALL,	Harrisburg.
SAMUEL Q. BROWN,	Pleasantville.

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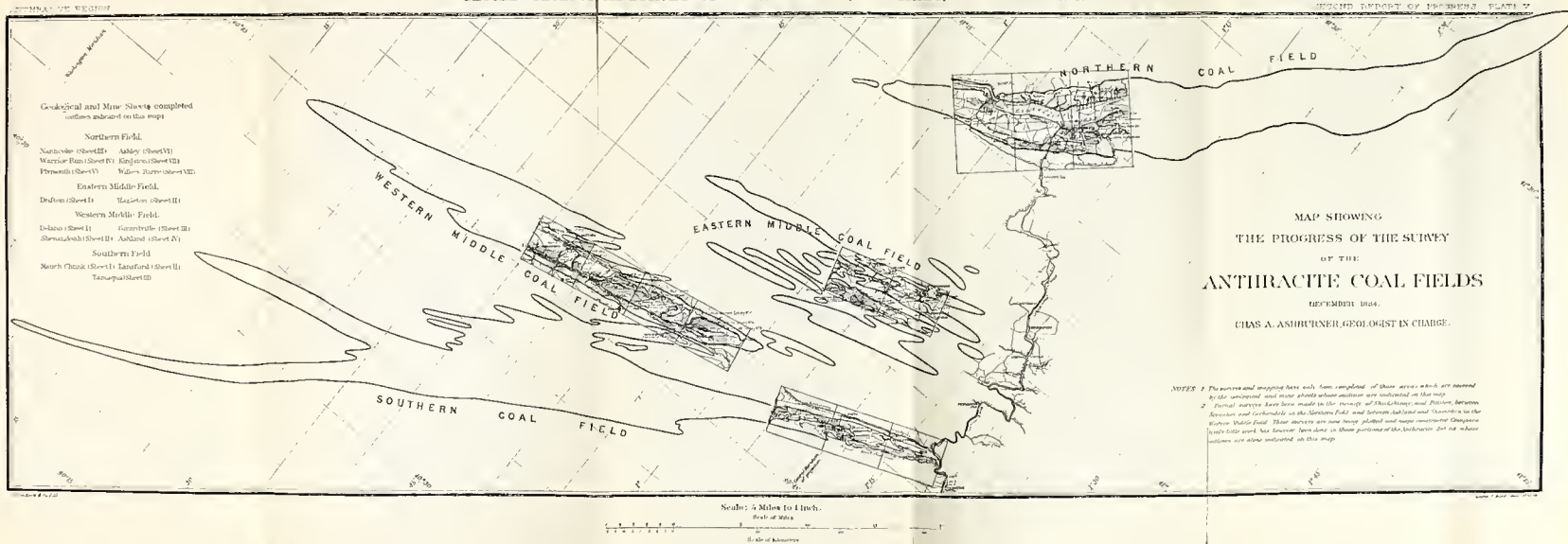
## STATE GEOLOGIST.

PETER LESLEY,	Philadelphia.
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Mr. Charles A. Ashburner has been authorized to furnish the members of the Legislature whatever information they may desire in regard to the survey. Mr. Ashburner can be seen in Harrisburg, but all communications to him should be addressed 907 Walnut street, Philadelphia.

## SECOND GEOLOGICAL SURVEY OF PENNSYLVANIA, J. P. LEESEY, STATE GEOLOGIST.

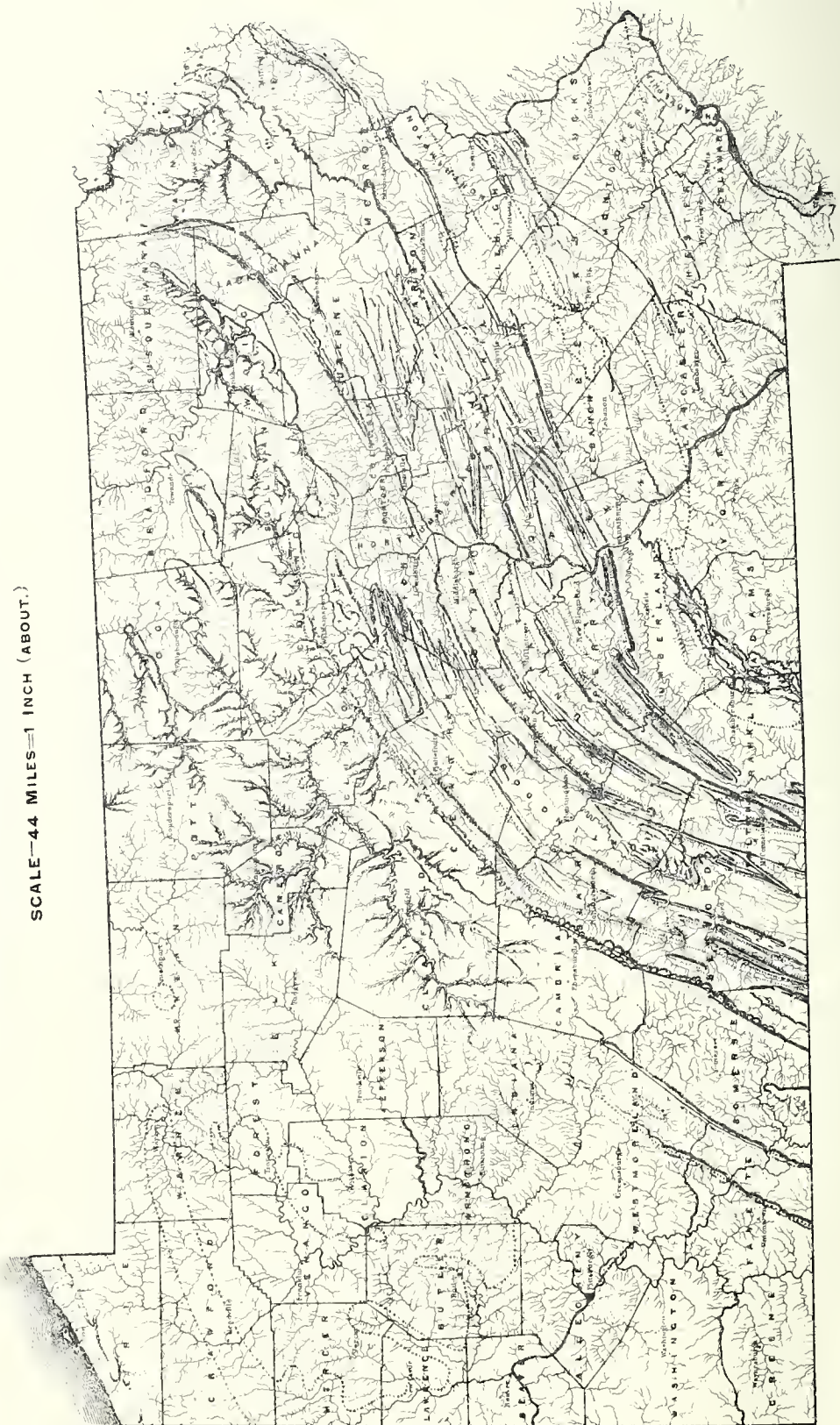
SECOND REPORT OF PROGRESS, PLATE V





# MAP OF PENNSYLVANIA.

SCALE—44 MILES=1 INCH (ABOUT.)



# MEMORANDA

FOR THE

## Information of Members of the Legislature.

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**ADAMS COUNTY.** Surveyed in 1874 and 1875 by P. Frazer. See Report **C** on Adams and York (1876), and Report **CC** on Adams, York, Cumberland, and Franklin (1877). *Note.*—Instrumental lines were run in both counties. The special topographical survey of the South mountains in Franklin and Adams, by A. E. Lehman, 1876, was continued through 1877, 1878, 1879, 1880, northwards to Pinegrove furnace. In 1881 and 1882 this survey was carried forward in Cumberland and York counties towards Mount Holly Springs; and in 1883 was completed to the end of the mountain range at Dillsburg. Four sheets have been published with the county map in Atlas **D 5**. The remaining sheets will be published in 1885 in atlas form and in rolls for the use of surveyors.

**ALLEGHENY.** Surveyed in 1875 and 1876 by J. J. Stevenson and I. C. White. See Report **K** on Greene, Washington, and south-west Allegheny counties (1876); Report **KK** on Fayette, Westmoreland, and eastern Allegheny (1877); Report **Q** on Beaver and N. W. Allegheny (1877).

**ARMSTRONG.** Surveyed in 1879 by W. G. Platt. Report **H 5** (1880).

**BEAVER.** Surveyed in 1876 by I. C. White. See Report **Q** (1877).

**BEDFORD.** Surveyed in 1881 by J. J. Stevenson. Report **T 2** (1882). Broad Top coal field to be surveyed.

**BERKS.** Surveyed in 1880 by R. H. Sanders. A geological map of the limits of the formations and the dip and strike of all exposed rocks in the valley is prepared but not yet published. The sheets of the great topographical survey of the limestone belt and mountains of Lehigh and Northampton (commenced in 1875, and completed in the spring of 1882), include that part of Berks county lying east of the Schuylkill, with the hills west of Reading, surveyed by E. V. D'Invilliers. The sheets of the map are published in an Atlas with Report **D 3**, Vol. 2, Part 1 (1883). Part 2 will be published in 1885.

**BLAIR.** Surveyed in 1877 by F. Platt. Report with Atlas **T** (1877). The topographical map of Morrison's Cove, Canoe valley and Sinque Run valley, with the Frankstown and Hollidaysburg region, reaching to the summit of the Allegheny mountain at Gallitzin, was commenced by R. H. Sanders in 1875, and completed in 1877. Atlas to Report **T**.

**BRADFORD.** Surveyed in 1874 by A. Sherwood. Report on Bradford and Tioga counties **G** (1878.) *Note.*—The delay in publishing was caused by the fact that Mr. Sherwood was ordered to confine his attention to the rocks below the coal. In 1877 Mr. F. Platt reported on the coal basins, and Report **G** was then published. Subsequent work by I. C. White and E. W. Claypole has discovered such considerable errors in the survey of 1874 that a revision of the whole eastern and middle parts of the county, north of Towanda creek, should be made.

**BUCKS.** The southern belt of the county was surveyed in 1879 and 1880 by C. E. Hall. See **C 6** (1881). This report gives a detailed description of all the rocks of the county south of the red shale country. The northern edge of the county has been included in the sheets of the topographical map of the South mountains, Atlas **D 3**, (1883.) The rest of Bucks county has not yet been surveyed.

**BUTLER.** *Southern half* surveyed in 1876 by I. C. White. Report on Beaver, and parts of Allegheny and Butler counties, **Q** (1877). *Northern half* surveyed in 1878 by H. M. Chance. Report **V** (1878).

**CAMBRIA.** Surveyed in 1875 by F. and W. G. Platt. Report on Cambria and Somerset District, Part 1, Cambria, **H 2** (1877).

**CAMERON.** Surveyed in 1878, 1879, by C. A. Ashburner and A. W. Sheafer. Report **R 2**, Part 2 (Township geology) early in 1885. Part 1 (General geology) later in 1885. For maps see Atlas **R 2** (1884).

**CARBON.** The Panther Creek coal basin has been surveyed and reported on. Anthracite Region, Report **I** (1883). Atlas of topographical and mine maps and sections (Southern Anthracite Field, Part I, 1883). The survey of the Eastern Middle coal field, commenced at Hazleton in 1881, was interrupted early in 1884. Atlas of Eastern Middle coal field, Part I, will be published in 1885. *Note.*—The geology of the Lehigh river below Mauch Chunk is also described in the Report on Pike and Monroe counties, **G 6** (1882).

**CENTRE.** Partly surveyed in 1880-'81, by F. Platt and W. G. Platt. Ores sampled for analysis in 1882 by A. S. McCreath. Surveyed by E. V. d'Invilliers in 1883, and Report published, **T 4**, (1884).

**CHESTER.** Surveyed in 1879-80, by P. Frazer. Report **C 4** (1883).

**CLARION.** Surveyed in 1879 by H. M. Chance. Report **VV** (1880.)

**CLEARFIELD.** Surveyed in 1874 by F. Platt. See Report on the earfield and Jefferson District, **H** (1875). Resurveyed by H. M. Chance—1883. Report **H 7** (1884.)

**LINTON.** Surveyed in 1879 by H. M. Chance. Report **G 4** (1880).

**COLUMBIA.** Surveyed in 1882 by I. C. White. Report **G 7** (1883). Maps and sections of Centralia coal basin see Atlas, Western Mid-thracite Field, Part I (1884).



**CRAWFORD.** Surveyed in 1879 by I. C. White. Report on Erie and Crawford, **Q 4** (1881).

**CUMBERLAND.** Surveyed in 1878 by R. H. Sanders. County map exhibiting all exposed outcrops and mines prepared, published in Atlas **D 5** (1883). Mines visited in 1880, and ores sampled and analyzed by Mr. McCreath. See Report **M 3** (1881). *Note.*—Sheets of the South Mountain topographical map, by A. E. Lehman, in press. Report on the geology of the county partially prepared for press.

**DAUPHIN.** Surveyed in 1879-'80 by R. H. Sanders. County map exhibiting all exposed outcrops, mines, and limits of formations, prepared. Mines personally visited and ores sampled in 1882 by A. S. McCreath. Report delayed.

**DELAWARE.** Surveyed in 1881 by C. E. Hall. Report **C 5**, partly printed, to be published in 1885.

**ELK.** Surveyed in 1877-'8 and revised 1883 by C. A. Ashburner and A. W. Sheaffer. Atlas **R 2** (1884). Report Part 2, Township Geology (printed), will be published early in 1885. Part 1 later.

**ERIE.** Surveyed in 1879 by I. C. White. Report on Erie and Crawford **Q 4** (1880).

**FAYETTE.** The western part surveyed in 1876, the eastern part in 1877, by J. J. Stevenson. Report on Fayette and Westmoreland counties, **K 2** (1877), and Report on the Ligonier valley, **K 3** (1878.) *Note.*—Report **L** (1876) gives the special survey of the Coke region.

**FOREST.** Surveyed in 1879, revised 1883, by C. A. Ashburner and A. W. Sheaffer. Atlas of maps and sections **R 2** (1884). Report Part 2, Township Geology (printed), will be published early in 1885. Part 1 later.

**FRANKLIN.** Surveyed in 1879 by R. H. Sanders. County map exhibiting all exposed outcrops and mines published in Atlas **D 5** (1883). Mines revisited in 1880, and ores sampled by A. S. McCreath, and analyzed. See Report **M 3** (1881). Northern part surveyed in 1877 by J. H. Dewees. Instrumental line run in 1878 by C. W. Ames. South mountains instrumental surveyed in 1880-'81 by A. E. Lehman. Report, partly written, to be published in 1885.

**FULTON.** Surveyed in 1882 by J. J. Stevenson. Report on Bedford and Fulton, **T 2** (1882). Broad Top coal field to be surveyed.

**GREENE.** Surveyed in 1875 by J. J. Stevenson. Report on Greene and Washington, **K** (1876). Special Report on the Collieries and Coal of the Monongahela valley by J. S. Wall, **K 4** (1884).

**HUNTINGDON.** Surveyed partially in 1874-'75 by J. H. Dewees, C. Ashburner and C. E. Billin. See Report on the Juniata District (1878). Broad Top coal field instrumental survey to be completed. Eastern end of county surveyed by Mr. Billin in connection with his topographical survey of the Seven mountains, some maps and sections.

**WARREN.** Surveyed in 1874 and onwards, especially in 1882, by J. F. Carll. Report on Warren county, **I 4** (1883).

**WASHINGTON.** Surveyed in 1875 by J. J. Stevenson and I. C. White. See Report on Greene and Washington, **K** (1876). Special Report on the collieries of the Monongahela valley by J. S. Wall. **K 4** (1884).

**WAYNE.** Surveyed in 1880 by I. C. White. Report on Susquehanna and Wayne, **G 5** (1881).

**WESTMORELAND.** Surveyed in 1876 and 1877 by J. J. Stevenson. See Report on Fayette and Westmoreland, **K 2** (1877), and on the Ligonier valley **K 3** (1878).

**WYOMING.** Surveyed in 1876 by A. Sherwood. Partly resurveyed in 1882 by I. C. White. Report **G 7** (1883).

**YORK.** Surveyed in 1874, 1875, and 1876 by P. Frazer. Reports on Adams and York, **C** (1876) and **C 2** (1877).

Of the above-mentioned Reports, **AA, AC, C 3, D 3, D 5, I 3, R, R 2,** and **T** are accompanied by octavo Atlases, containing maps and sections. In addition to the above the following Reports have been published:

**A** (1875). A history of geological surveying in Pennsylvania.

**A 2**, on Waste in mining Anthracite, by F. Platt (1881).

**AC** on the mining of Anthracite coal, by H. M. Chance.

**E**, on Azoic rocks, by T. S. Hunt (1878).

**J**. Special report on Petroleum, 1875.

**B, B 2, M, M 2, M 3** are the successively published reports of chemical analyses made for the Survey by F. A. Genth, S. P. Sadtler, F. A. Genth, Jr., A. S. McCreath, and J. M. Stinson.

**K 4**, on the Monongahela River collieries, by J. S. Wall. (1884.)

**L**, on Connellsville Coke; and Gas, (1876.)

**N**. (1878) contains the Levels of the State railroads, canals, roads, &c., collected in 1875, 1876, 1877, by C. Allen. Materials for **N 2** are largely collected.

**O, O 2** contain the catalogue of specimens collected from 1874 to 1880. **O 3** has not yet been prepared.

**P** three volumes in two (and Atlas) figures and describes the coal plants, studied by L. Lesquereux, from 1874 to 1884.

**P 2** describes the Permian plants of Greene county and West Virginia, Fontaine and White (1880).

**CR 3** contains descriptions of crustaceans found in the coal measures, in J. E. Beecher and James Hall (1884).

**C** on the glacial moraines and gravels, by H. C. Lewis (1884).

**C**, small hand-book or traveling atlas of geologically colored county **CO** (1884), with a small State map, and a short prefatory description of Geology of the State will be issued early in 1885.

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